

Industrial Hygiene Case Study: Steel Window Replacement at Norfolk Naval Station

Objective:

Design and implement a comprehensive industrial hygiene program for the replacement of steel windows at the carrier support warehouses at Norfolk Naval Station, ensuring compliance with environmental regulations and the safe management of hazardous and recycled waste streams.

Scope of Service:

KES was contracted to provide industrial hygiene services for the replacement of steel windows in several carrier support warehouses at Norfolk Naval Station. The project involved evaluating potential occupational and environmental health risks associated with the removal of old windows, including hazardous materials management and ensuring compliance with environmental safety standards. KES's responsibilities included program submission, ongoing compliance monitoring, and managing hazardous and recycled waste streams throughout the project.

Key Services Provided:

1. Program Design and Submission:

- KES designed a tailored industrial hygiene program to address the unique hazards posed by the steel window replacement process, including the potential presence of hazardous materials such as lead-based paint, asbestos, or other contaminants.
- The program included a detailed plan for hazard assessments, exposure monitoring, PPE requirements, and waste management protocols.
- Submitted the program for approval to project stakeholders and regulatory agencies to ensure all environmental and safety guidelines were met.

2. Compliance Monitoring:

- Conducted compliance monitoring throughout the project to ensure adherence to OSHA, EPA, and local environmental safety regulations.
- Monitored air quality, noise levels, and exposure to any potentially hazardous materials during the window replacement process to maintain safe working conditions.
- Provided ongoing oversight to ensure that the project remained compliant with safety standards, including conducting regular inspections and audits.

3. Hazardous and Recycled Waste Management:

- Developed and implemented a waste management plan to safely handle and dispose of hazardous materials generated during the steel window replacement, such as lead dust, old paint, and other potential contaminants.
- Ensured that all waste was segregated, properly labeled, and disposed of in compliance with EPA regulations and local waste management protocols.
- Managed the recycling of materials such as scrap metal, glass, and steel to reduce environmental impact and support sustainability efforts.
- Coordinated with certified hazardous waste disposal contractors to ensure the safe transport and disposal of any hazardous waste generated.

4. Worker Safety and PPE Requirements:

- Provided guidance on the use of personal protective equipment (PPE) for workers involved in the window replacement process, including respirators, gloves, eye protection, and protective clothing.
- Developed and delivered training sessions to workers on the safe handling of potentially hazardous materials, proper use of PPE, and best practices for preventing contamination during the window removal and installation processes.

5. Air and Surface Sampling:

- Conducted air and surface sampling before, during, and after the window replacement work to ensure that lead dust or other contaminants were not released into the air or settled on surfaces.
- Provided real-time monitoring data to assess exposure risks and adjusted safety measures as necessary to ensure that worker exposure remained within safe limits.

Project Activities and Response Efforts:

1. Pre-Construction Hazard Assessment:

- Prior to the start of the window replacement, KES conducted a thorough hazard assessment to determine the presence of any hazardous materials in the existing steel windows, such as lead-based paint or asbestos.
- Historical building assessments and material sampling were conducted to identify the scope of contamination and plan for safe removal.

2. Worksite Preparation and Containment:

- Areas where steel windows were being replaced were properly contained using plastic sheeting and negative pressure ventilation to prevent the release of dust or debris into adjacent work areas.
- Work areas were isolated from non-work zones, and barriers were installed to limit worker exposure to potential contaminants.

3. Compliance Monitoring During Window Replacement:

- Continuous monitoring of air quality and worker exposure levels was performed throughout the replacement process to ensure compliance with OSHA's permissible exposure limits (PELs) for hazardous substances.
- Noise levels were also monitored, as the removal and replacement of steel windows involved significant mechanical activity. Corrective actions were taken when noise levels exceeded acceptable thresholds.

4. Waste Stream Management:

- KES ensured that all hazardous and non-hazardous waste streams were managed correctly, including the segregation and proper disposal of lead-based paint and contaminated materials.
- Recyclable materials, such as scrap metal and glass, were carefully sorted and sent to certified recycling facilities to reduce the environmental footprint of the project.

5. Final Clearance and Post-Construction Safety Review:

- After the steel windows were replaced, KES conducted thorough air and surface sampling to ensure that no residual contaminants remained in the work area, and that the environment was safe for workers and the facility's occupants.
- A final safety review was conducted, and all necessary documentation was submitted to project stakeholders to confirm that the work had been completed in compliance with environmental and safety standards.

Program Results and Impact:

1. Reduced Exposure to Hazardous Materials:

- Through effective hazard assessments, containment measures, and real-time monitoring, KES successfully minimized workers' exposure to lead dust, asbestos, and other potential contaminants during the window replacement process.
- Regular monitoring ensured that exposure levels remained within acceptable limits, reducing the risk of occupational health issues related to lead poisoning or respiratory hazards.

2. Compliance with Safety and Environmental Regulations:

- The project maintained full compliance with OSHA, EPA, and other regulatory standards throughout its duration, ensuring that all work practices, safety protocols, and waste management procedures adhered to established guidelines.

- By conducting regular inspections and compliance audits, KES ensured that all aspects of the project remained within regulatory boundaries and met high safety standards.

3. Sustainable Waste Management:

- KES implemented an efficient waste management strategy that not only ensured proper disposal of hazardous waste but also facilitated the recycling of valuable materials, contributing to the sustainability goals of the project.
- All hazardous materials were safely disposed of in compliance with EPA regulations, and recyclable materials were diverted from landfills, supporting environmental protection efforts.

4. Enhanced Worker and Environmental Safety:

- The industrial hygiene program successfully minimized the environmental impact of the project while protecting worker health and safety.
- Workers received proper training and used appropriate PPE, significantly reducing the risk of exposure to hazardous materials during the window replacement process.

Conclusion:

KES's comprehensive industrial hygiene program for the replacement of steel windows at Norfolk Naval Station provided a safe, compliant, and environmentally responsible solution to the project's challenges. Through meticulous planning, continuous compliance monitoring, and effective hazardous materials management, KES ensured the safety of both workers and the surrounding environment. By developing and implementing a robust waste management strategy, KES not only complied with regulations but also supported sustainability efforts by recycling valuable materials. The project was successfully completed on time and within budget, demonstrating KES's ability to manage complex industrial hygiene challenges in a high-stakes environment.